

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Peter D. Karabinis

Application No.: To Be Assigned

Filed: Concurrently Herewith

For: **CO-CHANNEL WIRELESS COMMUNICATION METHODS AND SYSTEMS USING
NONSYMMETRICAL ALPHABETS**

March 8, 2004

MAIL STOP PATENT APPLICATION

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

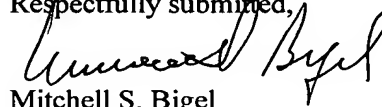
INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97(b)

Sir:

Attached is a list of documents on Form PTO-1449, together with a copy of any listed foreign patent document and/or non-patent literature. A copy of any listed U.S. patent and/or U.S. patent application publication is not provided herewith in accordance with the waiver by the U.S. Patent and Trademark Office of requirements under 37 C.F.R. § 1.98(a)(2)(i) for all U.S. national patent applications filed after June 30, 2003 and for all international applications that have entered the national stage under 35 USC § 371 after June 30, 2003. It is requested that these documents be considered by the Examiner and officially made of record in accordance with the provisions of 37 C.F.R. § 1.56 and Section 609 of the MPEP.

No fee is believed due. However, the Commissioner is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-0220.

Respectfully submitted,



Mitchell S. Bigel

Registration No. 29,614

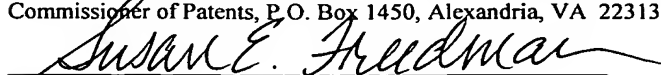
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Susan E. Freedman

Date of Signature: March 8, 2004

Substitute form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Complete if Known	
				Application Number	To Be Assigned
				Filing Date	Concurrently
				First Named Inventor	Peter D. Karabinis
				Group Art Unit	
Examiner Name					
Sheet	1	of	2	Attorney Docket Number	9301-83

U.S. PATENTS AND PATENT PUBLICATIONS					
Examiner Initials*	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code (if known)		
	1.	US-6,526,278	B1	Hanson et al.	02/25/2003
	2.	US-6,445,926	B1	Boch et al.	09/03/2002
	3.	US-6,418,316	B2	Hildebrand et al.	07/09/2002
	4.	US-5,872,544		Schay	02/16/1999
	5.	US-5,724,666		Dent	03/03/1998
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FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Office	Number	Kind Code (if known)		

OTHER NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published		
	6.	Andrews et al., <i>Tripling the Capacity of Wireless Communications Using Electromagnetic Polarization</i> , Nature, Vol. 409, January 18, 2001, pp. 316-318		
	7.	Beach et al., <i>Capacity and Service Extension for Future Wireless Networks Using Adaptive Antennas</i> , Antennas and Propagation, Conference Publication No. 407, April 4-7 1995, pp. 125-129		
	8.	Cho et al., <i>Fundamental Techniques and Future Trends in Smart Antenna Technology</i> , NTT R&D, Vol. 51, No. 6, 2002, pp. 437-446		
	9.	Cusani et al., <i>A Simple Polarization-Recovery Algorithm for Dual-Polarized Cellular Mobile-Radio Systems in Time-Variant Faded Environments</i> , IEEE Transactions on Vehicular Technology, Vol. 49, No. 1, January 2000, pp. 220-228		
	10.	Czylwik, <i>Downlink Beamforming for Mobile Radio Systems With Frequency Division Duplex</i> , The 11th IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, Volume 1, September 18-21 2000, pp. 72-76		
	11.	Gardner et al., <i>Making the Most Out of Spectral Redundancy in GSM: Cheap CCI Suppression</i> , IEEE Conference Record of the Thirty-Fifth Asilomar Conference on Signals, Systems and Computers, Vol. 1, November 4-7, 2001 pp. 883-889		
	12.	Gerlach, <i>Cellular CDMA Downlink Beamforming in Multipath Environments</i> , 4 th CDMA International Conference and Exhibition, The Realization of IMT-2000, Vol. 2, 1999, pp. 270-276		
	13.	Hafeez et al., <i>Capacity and Quality Enhancement for ANSI-136 Downlink Using Interference Cancellation and Beamforming</i> , IEEE 52 nd Vehicular Technology Conference, Vol. 5, September 24-28, 2000, pp. 2414-2421		
	14.	Jeng et al., <i>Experimental Evaluation of Smart Antenna System Performance for Wireless Communications</i> , IEEE Transactions on Antennas and Propagation, Vol. 46, No. 6, June 1998, pp. 749-757		

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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	15.	Lehmann et al., <i>Evaluations of Link-Level Performance Improvements by Using Smart Antennas for the TD-CDMA Based UTRA TDD Mobile Radio Systems</i> , 52 nd IEEE Vehicular Technology Conference, Volume 3, September 24-28 2000, pp. 1328-1332		
	16.	Li et al., <i>Spatial Multiuser Access With MIMO Smart Antennas for OFDM Systems</i> , IEEE 54 th Vehicular Technology Conference, Vol. 3, October 7-11, 2001, pp. 1553-1557		
	17.	Liu et al., <i>Smart Antennas in Wireless Systems: Uplink Multiuser Blind Channel and Sequence Detection</i> , IEEE Transactions on Communications, Vol. 45, No. 2, February 1997, pp. 187-199		
	18.	Marzetta et al., <i>Capacity of a Mobile Multiple-Antenna Communication Link in Rayleigh Flat Fading</i> , IEEE Transactions on Information Theory, Vol. 45, No. 1, January 1999, pp. 139-157		
	19.	Miller et al., <i>Estimation of Co-Channel Signals With Linear Complexity</i> , IEEE Transactions on Communications, Vol. 49, No. 11, November 2001, pp. 1997-2005		
	20.	Mohamed et al., <i>A Combined Antenna Array and Multi-User Detection DS-CDMA Receiver in Single-Path and Multi-Path Fading Channels</i> , Wireless Personal Communications, Vol. 20, 2002, pp. 251-265		
	21.	Mohamed et al., <i>A Low-Complexity Combined Antenna Array and Interference Cancellation DS-CDMA Receiver in Multipath Fading Channels</i> , IEEE Journal on Selected Areas in Communications, Vol. 20, No. 2, February 2002, pp. 248-256		
	22.	Monsen, <i>MMSE Equalization of Interference on Fading Diversion Channels</i> , IEEE Transactions on Communications, Vol. Com-32, No. 1, January 1984, pp. 5-12		
	23.	Monsen, <i>Multiple-Access Capacity in Mobile User Satellite Systems</i> , IEEE Journal on Selected Areas in Communications, Vol. 13, No. 2, February 1995, pp. 222-231		
	24.	Naguib et al., <i>Applications of Space-Time Block Codes and Interference Suppression for High Capacity and High Data Rate Wireless Systems</i> , Conference Record of the Thirty-Second Asilomar Conference on Signals, Systems & Computers, Vol. 2, November 1-4 1998, pp. 1803-1810		
	25.	Naguib et al., <i>Space-Time Block Codes and Interference Suppression for High Capacity Wireless Systems</i> , Conference Record of the Thirty-Section Asilomar Conference on Signals, Systems and Computers, Vol. 2, November 1-4, 1998, pp. 1803-1810		
	26.	Nishimori et al., <i>Automatic Calibration Method Using Transmitting Signals of an Adaptive Array for TDD Systems</i> , IEEE Transactions on Vehicular Technology, Vol. 50, No. 6, November 2001, pp. 1636-1640		
	27.	Papadopoulos et al., <i>Reduction of Mixed Cochannel Interference in Microcellular Shared Time-Division (STDD) Systems</i> , IEEE Transactions on Vehicular Technology, Vol. 47, No. 3, August 1998, pp. 842-855		
	28.	Rapajic, <i>Information Capacity of a Multipath Mobile Communication Channel With Large Number of Receiving Antennas</i> , IEEE ITW2001, September 2-7, 2001, pp. 104-106		
	29.	Razavilar et al., <i>Software Radio Architecture With Smart Antennas: A Tutorial On Algorithms and Complexity</i> , IEEE Journal on Selected Areas in Communications, Vol. 17, No. 4, April 1999, pp. 662-676		
	30.	Suthaharan et al., <i>Space-Time Coded MIMO-OFDM for High Capacity and High Data-Rate Wireless Communication Over Frequency Selective Fading Channels</i> , IEEE 4 th International Workshop Mobile and Wireless Communications Network, 2002, September 9-11, 2002, pp. 424-428		
	31.	Wells, <i>Increasing the Capacity of GSM Cellular Radio Using Adaptive Antennas</i> , IEE Proc.-Commun., Vol. 143, No. 5, October 1996, pp. 304-310		
	32.	Wolniansky et al., <i>V-BLAST: An Architecture for Realizing Very High Data Rates Over the Rich-Scattering Wireless Channel</i> , Invited paper, Proc. ISSSE-98, Pisa, Italy, Sept. 29, 1998, pp. 295-300		
	33.	Wong et al., <i>Adaptive Antennas at the Mobile and Base Stations in an OFDM/TDMA System</i> , IEEE Transactions on Communications, Vol. 49, No. 1, January 2001, pp. 195-206		
	34.	Wong et al., <i>Performance Enhancement of Multiuser MIMO Wireless Communication Systems</i> , IEEE Transactions on Communications, Vol. 50, No. 12, December 2002, pp. 1960-1970		

Examiner Signature		Date Considered	
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